

IN THE CLAIMS:

- 1 1. (Currently Amended) A metal halide lamp comprising an arc tube that includes:
2 a pair of electrode structures, each of which has an electrode at a tip;
3 a main tube part made of polycrystalline alumina ceramic having magnesium
4 oxide of 200 ppm or below, and containing a discharge space in which the electrodes of the
5 electrode structures are located to oppose each other; and
6 a pair of thin tube parts that connect from the main tube part and are sealed by
7 respective sealing members with the electrode structures inserted therein, wherein
8 $20 \leq WL \leq 50$, $EL/Di \geq 2.0$, and $0.5 \leq G \leq 5.0$ are satisfied, where tube wall loading of
9 the arc tube is $WL(W/cm^2)$, a distance between the electrodes is $EL(mm)$, an inner diameter of
10 the main tube part is $Di(mm)$, and a crystal grain diameter of the polycrystalline alumina ceramic
11 is $G(\mu m)$.
- 1 2. (Original) The metal halide lamp of Claim 1, wherein
2 the crystal grain diameter $G(\mu m)$ of the polycrystalline alumina ceramic satisfies
3 $0.5 \leq G \leq 1.5$.
- 1 3. (Original) The metal halide lamp of Claim 1, wherein
2 the inner diameter $Di(mm)$ of the main tube part satisfies $2.0 \leq Di \leq 10.0$.
- 1 4. (Cancelled)
- 1 5. (Original) The metal halide lamp of Claim 1, wherein
2 the polycrystalline alumina ceramic has transmittance of 94% or more.

1 6. (New) A metal halide lamp comprising an arc tube that includes:

2 a pair of electrode structures, each of which has an electrode at a tip;

3 a main tube part made of polycrystalline alumina ceramic having magnesium
4 oxide in a range of 1 ppm to 200 ppm wherein a uniform grain dimension is provided, and
5 containing a discharge space in which the electrodes of the electrode structures are located to
6 oppose each other; and

7 a pair of thin tube parts that connect from the main tube part and are sealed by
8 respective sealing members with the electrode structures inserted therein, wherein

9 $20 \leq WL \leq 50$, $EL/Di \geq 2.0$, and $0.5 \leq G \leq 5.0$ are satisfied, where tube wall loading of
10 the arc tube is $WL(W/cm^2)$, a distance between the electrodes is $EL(mm)$, an inner diameter of
11 the main tube part is $Di(mm)$, and a crystal grain diameter of the polycrystalline alumina ceramic
12 is $G(\mu m)$.

1 7. (New) The metal halide lamp of Claim 6, wherein

2 the crystal grain diameter $G(\mu m)$ of the polycrystalline alumina ceramic satisfies
3 $0.5 \leq G \leq 1.5$.

1 8. (New) The metal halide lamp of Claim 6, wherein

2 the inner diameter $Di(mm)$ of the main tube part satisfies $2.0 \leq Di \leq 10.0$.

1 9. (New) The metal halide lamp of Claim 1, wherein

2 the polycrystalline alumina ceramic has transmittance of 94% or more.